

Appendix L
Cost Estimates

Lockheed Martin Idaho Technologies Company
INTERDEPARTMENTAL COMMUNICATION

Date: January 29, 1999

To: J. F. Keck MS 3625 6-5458

From: D. T. Peterson MS 3655 6-2990

Subject: OPERABLE UNIT (OU) 4 – 13 WASTE AREA GROUP (WAG) 4 FEASIBILTIV
 STUDY (FS) ALTERNATIVE COST ESTIMATES – CENTRAL FACILITIES
 AREA (CFA) 04 – DISPOSAL POND AT CFA 674 - DTP-008-99

Per your request, Cost Estimating has revised the Planning Cost Estimate to reflect the changes in the original and the additional scopes of work for the above-mentioned project. The Total Project Costs (TPC) for each of these alternatives are as follows:

| <u>Alternative</u> | <u>1999 Dollars</u> | <u>Net Present Value Dollars</u> | <u>Escalated Dollars</u> |
|---|---------------------|----------------------------------|--------------------------|
| #1 No Action | \$ 1,977,000 | \$ 1,110,000 | \$ 9,842,000 |
| #2 Institutional Controls | \$ 9,506,000 | \$ 4,499,000 | \$ 56,955,000 |
| #3A Excavate, Treat & On Site Disposal | \$ 8,394,000 | \$ 6,961,000 | \$ 18,186,000 |
| #3B Excavate, Treat & Off Site Disposal | \$ 14,761,000 | \$ 12,865,000 | \$ 25,196,000 |
| #4 Containment w/ the ET Type Cap Cover | \$ 13,173,000 | \$ 7,992,000 | \$ 59,373,000 |

Included for your use is the Cost Estimating Summary and Detail sheets with the cost breakdowns. Also included are the Cost Estimate Recapitulation sheets describing the basis and assumptions used in the development of this estimate. If you have any questions or comments, please do not hesitate to contact me at 526-2990 or E-mail ID DTP.

Attachments
 As Stated:

cc: Estimate File #3951 – Rev. D
 J. R. Baker Files



SUMMARY COST ESTIMATE SHEET


Rev 10-96

Page 1 of 1

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost EstimatesType of Estimate: PlanningFile No: 3951-DDate: 01/29/99Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674Prep'd By: J. R. BakerLocation Idaho National Engineering & Environmental Laboratory (INEEL)Checked By: Requester J. F. Keck MS 3625 526-5458

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 | ALTERNATIVE #2 | ALTERNATIVE #3A | ALTERNATIVE #3B | ALTERNATIVE #4 | |
|--------------|---|----------------|---------------------------|---|--|--------------------------------------|--|
| | | NO ACTION | INSTITUTIONAL CONTROLS | EXCAVATE TREAT & ON SITE DISPOSAL | EXCAVATE TREAT & OFF SITE DISPOSAL | CONTAINMENT w/ ET - TYPE COVER | |
| | CAPITAL COST SUBTOTAL | \$1,101,000 | \$1,630,016 | \$6,037,231 | \$10,934,760 | \$4,450,500 | |
| | Contingency @ 30% | \$330,300 | \$489,005 | \$1,811,169 | \$3,280,428 | \$1,335,150 | |
| | TOTAL CAPITAL COST IN FY99 DOLLARS | \$1,431,000 | \$2,119,000 | \$7,848,000 | \$14,215,000 | \$5,786,000 | |
| | TOTAL CAPITAL COST IN ESCALATED DOLLARS | \$6,247,000 | \$8,317,000 | \$14,591,000 | \$21,601,000 | \$12,152,000 | |
| | TOTAL CAPITAL COST IN NET PRESENT VALUE | \$881,000 | \$1,398,000 | \$6,732,000 | \$12,636,000 | \$4,830,000 | |
| | | | | | | | |
| | O&M COST SUBTOTAL | \$420,000 | \$5,682,000 | \$420,000 | \$420,000 | \$5,682,000 | |
| | Contingency @ 30% | \$126,000 | \$1,704,600 | \$126,000 | \$126,000 | \$1,704,600 | |
| | TOTAL O&M COST IN FY99 DOLLARS | \$546,000 | \$7,387,000 | \$546,000 | \$546,000 | \$7,387,000 | |
| | TOTAL O&M COST IN ESCALATED DOLLARS | \$3,595,000 | \$48,638,000 | \$3,595,000 | \$3,595,000 | \$47,221,000 | |
| | TOTAL O&M COST IN NET PRESENT VALUE | \$229,000 | \$3,101,000 | \$229,000 | \$229,000 | \$3,162,000 | |
| | | | | | | | |
| | TOTAL PROJECT COST IN FY1999 DOLLARS | \$1,977,000 | \$9,506,000 | \$8,394,000 | \$14,761,000 | \$13,173,000 | |
| | TOTAL PROJECT COST IN ESCALATED DOLLARS | \$9,842,000 | \$56,955,000 | \$18,186,000 | \$25,196,000 | \$59,373,000 | |
| | TOTAL PROJECT COST IN NET PRESENT VALUE DOLLARS | \$1,110,000 | \$4,499,000 | \$6,961,000 | \$12,865,000 | \$7,992,000 | |

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates
Estimator: D. T. Peterson
Date: January 29, 1999
Estimate Type: Planning
File: 3951-D
Approved By: 

I. **SCOPE OF WORK:** *Brief description of the proposed project.*

Provide a Planning Cost Estimate (rough order of magnitude) for comparison of the Waste Area Group (WAG) 4 Central Facilities Area (CFA) Environmental Restoration Feasibility Study. The following alternative scenarios have been selected for the initial evaluation.

WAG 4 - CFA 04: DISPOSAL POND AT CFA 674.

Alternative #1: No Action
Alternative #2: Institutional Controls
Alternative #3A: Excavate, Treat and On Site Disposal
Alternative #3B: Excavate, Treat and Off Site Disposal
Alternative #4: Containment with the ET Type Cap Cover

Summary costs have been prepared for comparative analyses and are presented in:

1. Current year 1999 dollars.
2. Escalated dollars per DOE published rates.
3. Present net worth dollars, discounting at a rate of 5% as recommended by the EPA under CERCLA guidance.

II. **BASIS OF THE ESTIMATE:** *Drawings, Design Report, Engineers Notes and/or other documentation upon which the estimate is originated.*

Discussions with the Requestor (J. F. Keck).

Notegram from the Requestor outlining the preliminary scope, footprint and depth of contamination for this site.

Discussions with vendors currently participating in these types of restoration.

Use of the R. S. Means "Environmental Remediation Cost Data" manuals.

Field observations of current and past INEEL construction projects and practices.

A project site visit.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3951-D

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Practices and techniques used in the development of the previous comparable FS Cost Estimates. These would include but not limited to:

1. The estimates generated were performed in conjunction with the editing of the draft FS. Costs were generated and coordinated by cognizant estimators, engineers, and technical personnel.
2. Applicable Draft sections and preliminary outlines of FS document.
3. Coordination and status meetings with the Environmental Restoration cognizant engineers.
4. Area maps of sites from the Geographic Information System (GIS).
5. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," Interim Final, published by the EPA for Superfund guidance.
6. Conversations with responsible performing organizations, i.e., LMITCO Legal Department (historical permitting/documentation effort), Sample Management Office (historical sampling and analysis requirements and costs), etc.
7. Drawings, sketches, flow diagrams generated as a result of the scoping process and cost estimate basis.
8. Descriptive makeup of the cap configurations considered for Alternative, sketch of footprint area and perimeter toe area of cap.
9. Cost information from Appendix E in "Focused Feasibility Study of Engineered Barriers for Waste Management Units in the 200 Areas," Bechtel Hanford, Inc., DOE/RL-93-33, Rev. 0.
10. D&D List, "INEL EM 40/60, RAD Contaminated Surplus Facilities, etc."
11. Procurement Fee and General and Administrative (G&A) percentages as prepared by Program Controls and Financial Operations, "Lockheed Idaho Technologies Company FY 1997 Planning Preparation Guidance", dated June 1, 1996, Rev. 0.

III. **ASSUMPTIONS:** *Conditions statements accepted or supposed true without proof of demonstration. An assumption has a direct impact on total estimated cost.*

This estimate assumes the following:

This estimate is based upon the activities and quantities stated on each detail sheet. Any variations to these quantities or activities will require adjustments to this estimate.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3951-D

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The Record of Decision will be signed in November of 1999. All Remedial Design and construction activities are assumed to begin in the year 2000. Remedial Action activities vary per alternative and have been escalated to the midpoint of each activity.

INEEL Site Stabilization wages will apply; no overtime or shift differential has been considered for the construction efforts of these estimates.

No provisions were made for an 8-A Set Aside contractor. It is assumed that the job will be competitively bid within the local subcontracting community or accomplished by LMITCO personnel.

FFA/CO management costs encompass management oversight and coordination of initial planning activities, remedial action activity, operations/maintenance, including long term monitoring and institutional controls.

Program management duration was determined by the remedial action activity duration. Average effort was reflected as (1) full-time-equivalent (FTE) for the scheduled duration at a burdened rate of \$125,000 per year per FTE.

Program management involvement for the operation/maintenance period, an average effort of .25 FTE for the scheduled duration at a burdened rate of \$125,000 per year per FTE or \$31,250 per year.

RD/RA documents have been estimated as FFA/CO primary documents for quality, rigor, review and comment resolution. It is assumed that the review and comment resolution will be 50% of the total document costs. Where possible, RD/RA document preparation and program management costs have been based on historical data as per the INEL ER Cost Estimating Guide, Volume II, Environmental Restoration, August 1994.

The capital and O&M activities vary for all options and will start as directed by the responsible ER Program Management personnel. Capital costs will vary from one to three years per option dependent upon the complexity of remedial action activities. Duration of the Operations and Maintenance activity - surveillance and monitoring, is assumed to be 100 years.

Assume that the cost allowance associated with Program Documentation and Permitting will be sufficient to include all sites.

Remedial Design Activities include added institutional controls and a Title Design Construction Document package supporting remedial construction activities:

1. Added Institutional Controls consist of legal and environmental affairs relating to land and deed restrictions at the CFA. It is assumed that all required land and deed

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates
File: 3951-D

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restriction documents exist for all INEEL sites. Costs have been included for five year reviews with the governing bodies and agencies to ensure existing restrictions meet current CERCLA compliance.

2. The Title Design Construction Document package assumes in-house Title I/Title II engineering effort and design document preparation. Costs associated with the Title

Design efforts are based on historical data for construction projects on the INEEL Site. Title Design ranges from 2% to 20% of each construction subcontract depending upon the complexity. It has been assumed that the design required for these alternatives will be of a simplistic nature.

Project/Construction Management activities in support of the remedial action construction is based on historical data for construction projects on the INEEL Site. A percentage of 22.06% of the construction subcontract directs and indirects is reflected.

It is assumed that the costs for minimal operational effort for these items will be covered for a 100 year duration from the signing of the Record of Decision (ROD).

FFA/CO Program Management has been included for an initial one year duration to coordinate with agencies and to oversee the RD/RA document preparation.

Existing Institutional Controls over a 100 year duration include costs minimal passive activities and operational effort for the following items:

1. Minimal grounds maintenance and repair including an allowance of material and the labor required for periodic repair of fencing, access roads and signage.
2. Caretaker inspection of the area.

Operations Program Management has been included, for a minimal effort, at an average of .25 FTE per year for a 100 year surveillance and monitoring period.

Caretaker responsibilities will include a visual inspection of the physical security provisions (i.e., fencing, roads, signage, etc.), well inspections, coordination of snow removal and general grounds maintenance and upkeep. Minimal hours have been included at an average of .1 FTE per year for the 100 year surveillance and monitoring period.

Additional Institutional Controls consist of legal and environmental affairs relating to land and deed restrictions at the CFA area. It is assumed that all required land and deed restriction documents already exist for the INEEL. Costs have been included for five year reviews with the governing bodies and agencies to evaluate current conditions with CERCLA compliance.

Additional controls may include:

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3951-D

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1. Deed/regulatory restrictions limiting land use.
2. Soil moisture management and erosion control practice including groundwater drainage control and diversion.
3. Limit of access including security, fencing and markers.
4. Environmental monitoring (air, soil, and groundwater as indicated).

It has been assumed that all-capping materials (where applicable) are readily available on site in sufficient quantities unless specified and costed in the detail sheets.

It has been assume that the disposal sites "as stated in the estimate", can and will accept the disposal materials.

The sampling of the waste incoming to the repository is assumed to be the responsibility of the waste soils generator.

It was assumed that permitting and legal services were required and costs have been included in these estimates.

It is assumed that personnel will be required to wear minimal personnel protective equipment (booties, gloves, and masks) during all excavation.

Interim weather protection and water runoff control of the contaminated soils disposal at culmination of seasonal fair weather will be handled with a liner or tarp.

Monitoring and Five (5) year WAG reviews will be required for all alternatives as discussed with the Requestor.

RCRA sampling costs were included based on information from LMITCO ER program personnel.

IV. CONTINGENCY GUIDELINE IMPLEMENTATION: *The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost.*

Time constraints, completeness of design and accessibility to resources have been taken into consideration in generating the final costs reflected in the accompanying detail sheets. The level of detailed costing and application of contingency have been addressed.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

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Maintaining conformance with standard Environmental Restoration Program Procedure's neither contingency and/or Management Reserve have been included within the body of this estimate. At the final summary level, an average overall project contingency of 30% has been reflected as a separate line item.

Standard Cost Estimating practice for Environmental Projects would recognize contingency within a range of 30% to 50% at this phase of planning. The possibility for changes in scope, selected remedial technology, waste characterization/volume and project definition present risks that need to be considered as potential impacts to the cost of projects at this early stage of scoping.

The 30% contingency was applied to all alternatives in order to maintain consistency for the purposes of comparative analysis only.

V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE

Alternatives include an allowance for the General and Administration (G&A) and Procurement Fees on all subcontract work at a rate of 33% for G&A and PIF, and 2.5% for Procurement Fee compounded. No attempt was made at this time to outline a subcontract strategy to determine the number of subcontracts and/or separate procurement subcontracts that may be required during remedial action. As the preferred alternatives are selected and scope/schedule is further defined, costs will be revised.

The cost estimate shows life cycle costs for the WAG site as a stand alone project from signature of the ROD to the dismantlement of the WAG. The estimate is presented in a format consistent with the level of detail and approach for all sites. This format allows the cost estimate to be traceable to previous scope and schedule documentation. It facilitates comparison between other alternatives within the WAG sites and the WAG as a whole. The cost estimate details cost and scope assumptions in (6) RD/RA Area's: Design, Construction, Operations, Facilities Demolition, Surveillance and Monitoring, and Project/Program Management.

SUMMARY OF DETAILED COST ESTIMATE

Rev 10-96

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates
Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674
 Location Idaho National Engineering & Environmental Laboratory (INEEL)
 Requester J. F. Keck MS 3625 526-5458

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 | ALTERNATIVE #2 | ALTERNATIVE #3A | ALTERNATIVE #3B | ALTERNATIVE #4 | |
|--------------|---|--------------------|---------------------------|---|--|--------------------------------------|--|
| | | NO ACTION | INSTITUTIONAL CONTROLS | EXCAVATE TREAT & ON SITE DISPOSAL | EXCAVATE TREAT & OFF SITE DISPOSAL | CONTAINMENT w/ ET - TYPE COVER | |
| ER1220 | FFA/CO Management and Oversight | | | | | | |
| | Program Management | \$125,000 | \$125,000 | \$437,500 | \$437,500 | \$250,000 | |
| | RA Document Preparation | | | | | | |
| | RD/RA SOW | \$54,000 | \$54,000 | \$54,000 | \$54,000 | \$54,000 | |
| | RA Workplan | \$63,000 | \$63,000 | \$63,000 | \$63,000 | \$63,000 | |
| | Packaging, Shipping, Trans. Documentation | N/A | N/A | N/A | \$78,000 | N/A | |
| | Remedial Action Report | \$48,000 | \$48,000 | \$48,000 | \$48,000 | \$48,000 | |
| | WAG-Wide RA - 5 Yr. Review For 100 Years | \$811,000 | \$811,000 | \$811,000 | \$811,000 | \$780,000 | |
| | RD Documentation Preparation | | | | | | |
| | Safety Analysis Documentation (ASA & HSP) | N/A | \$100,500 | \$100,500 | \$100,500 | \$100,500 | |
| | Sampling and Analysis Plan | N/A | N/A | \$108,000 | \$108,000 | \$108,000 | |
| | Pre-Final Inspection Report | N/A | \$7,500 | \$7,500 | \$7,500 | \$7,500 | |
| ER1210 | Remedial Design | | | | | | |
| | Added Institutional Controls - 5 Yr. Review For 100 Years | N/A | \$200,000 | \$200,000 | \$200,000 | \$200,000 | |
| | Title Design Construction Document Package | N/A | \$21,000 | \$85,000 | \$59,500 | \$59,500 | |
| ER1230 | Remedial Action - Construction Subcontract | | | | | | |
| | Site Characterization | N/A | N/A | \$1,394,000 | \$1,394,000 | \$329,000 | |
| | Construction Subcontract/GFE | N/A | \$172,000 | \$2,526,000 | \$7,390,000 | \$2,108,000 | |
| | Project/Construction Management Allowance | N/A | \$28,016 | \$202,731 | \$183,760 | \$343,000 | |
| | TOTAL CAPITAL COST | \$1,101,000 | \$1,630,016 | \$6,037,231 | \$10,934,760 | \$4,450,500 | |
| ER1230 | Remedial Action - Operations (100 Year Duration) | | | | | | |
| | Program Management | N/A | \$3,385,000 | N/A | N/A | \$3,385,000 | |
| | Continued/New Construction CFA Caretaker/Maintenance | N/A | \$1,877,000 | N/A | N/A | \$1,877,000 | |
| | Operations, Maintenance, Materials, and Disposal | N/A | N/A | N/A | N/A | N/A | |
| ER2000 | D&D of Facilities | N/A | N/A | N/A | N/A | N/A | |
| ER1310 | Surveillance and Monitoring | \$420,000 | \$420,000 | \$420,000 | \$420,000 | \$420,000 | |
| | TOTAL OPERATIONS COST (100 YEARS) | \$420,000 | \$5,682,000 | \$420,000 | \$420,000 | \$5,682,000 | |

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

No Action

File No: 3951 - D

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #1

No Action

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

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No Action

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #1

No Action

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

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Institutional Controls

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: 3951-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

Type of Estimate: Planning File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #2

Institutional Controls

[illegible]

[illegible]

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Prep'd By: J. R. Baker

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Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #3A

Excavate, Treatment (Cement Stabilization) & On Site Disposal

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Excavate, Off Site Treatment and Disposal

File No: 3951 - D

Prep'd By: J. R. Baker

[illegible]

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Excavate, Off Site Treatment and Disposal

Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning

File No: 3951-D

Date: 01/29/99

Prep'd By: J. R. Baker

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #3B

Excavate, Off Site Treatment and Disposal

[illegible]

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Excavate, Off Site Treatment and Disposal

Prep'd By: J. R. Baker

[illegible]

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Excavate, Off Site Treatment and Disposal

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #3B

Excavate, Off Site Treatment and Disposal

Type of Estimate: Planning

File No: 3951-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #3B

Excavate, Off Site Treatment and Disposal

[illegible]

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates
Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674
Alternative #3B
Excavate, Off Site Treatment and Disposal

Type of Estimate: Planning

File No: 3951-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #4

Containment with ET - Type Cap Cover

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #4

Containment with ET - Type Cap Cover

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #4

Containment with ET - Type Cap Cover

File No: 3951 - D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #4

Type of Estimate: Planning

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Containment with ET - Type Cap Cover

Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 04: Disposal Pond at CFA 674

Alternative #4

Containment with ET - Type Cap Cover

File No: 3951-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Lockheed Martin Idaho Technologies Company
INTERDEPARTMENTAL COMMUNICATION

Date: January 29, 1999

To: J. F. Keck MS 3625 6-5458

From: D. T. Peterson MS 3655 6-2990

Subject: OPERABLE UNIT (OU) 4 – 13 WASTE AREA GROUP (WAG) 4 FEASIBILITY
 STUDY (FS) ALTERNATIVE COST ESTIMATES – CENTRAL FACILITIES
 AREA (CFA) 08 – SEWAGE TREATMENT PLANT DRAINFIELD - DTP-009-99

Per your request, Cost Estimating has revised the Planning Cost Estimate to reflect the changes in the original and the additional scopes of work for the above-mentioned project. The Total Project Costs (TPC) for each of these alternatives are as follows:

| <u>Alternative</u> | <u>1999 Dollars</u> | <u>Net Present Value Dollars</u> | <u>Escalated Dollars</u> |
|--|---------------------|--------------------------------------|--------------------------|
| #1 No Action | \$ 1,977,000 | \$ 1,110,000 | \$ 9,842,000 |
| #2 Institutional Controls | \$ 10,308,000 | \$ 4,860,000 | \$ 61,992,000 |
| #3A Excavate, Treat & On Site Disposal | \$ 34,291,000 | \$ 30,985,000 | \$ 46,691,000 |
| #3B Excavate, Treat & Off Site Disposal | \$ 40,535,000 | \$ 36,778,000 | \$53,565,000 |
| #4 Containment w/ the ET Type Cap Cover | \$ 15,719,000 | \$ 9,994,000 | \$ 66,298,000 |

Included for your use is the Cost Estimating Summary and Detail sheets with the cost breakdowns. Also included are the Cost Estimate Recapitulation sheets describing the basis and assumptions used in the development of this estimate. If you have any questions or comments, please do not hesitate to contact me at 526-2990 or E-mail ID DTP.

Attachments
As Stated:

cc: Estimate File #3952 – Rev. D
 J. R. Baker Files



SUMMARY COST ESTIMATE SHEET

Rev 10-96

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost EstimatesType of Estimate: 3952-DDate: 01/29/99Central Facilities Area (CFA) - 08: Sewage Treatment Plant DrainfieldPrep'd By: J. R. BakerLocation Idaho National Engineering & Environmental Laboratory (INEEL)Checked By: Requester J. F. Keck MS 3625 526-5458

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 | ALTERNATIVE #2 | ALTERNATIVE #3A | ALTERNATIVE #3B | ALTERNATIVE #4 |
|--------------|--|----------------|---------------------------|---|--|--------------------------------------|
| | | NO ACTION | INSTITUTIONAL CONTROLS | EXCAVATE TREAT & ON SITE DISPOSAL | EXCAVATE TREAT & OFF SITE DISPOSAL | CONTAINMENT w/ ET - TYPE COVER |
| | CAPITAL COST SUBTOTAL | 1,101,000 | 1,663,649 | 25,957,500 | 30,760,941 | 5,826,000 |
| | Contingency @ 30% | \$330,300 | \$499,095 | \$7,787,250 | \$9,228,282 | \$1,747,800 |
| | TOTAL CAPITAL COST IN FY99 DOLLARS | \$1,431,000 | \$2,163,000 | \$33,745,000 | \$39,989,000 | \$7,574,000 |
| | TOTAL CAPITAL COST IN ESCALATED DOLLARS | \$6,247,000 | \$8,364,000 | \$43,096,000 | \$49,970,000 | \$14,232,000 |
| | TOTAL CAPITAL COST IN NET PRESENT VALUE | \$881,000 | \$1,440,000 | \$30,756,000 | \$36,549,000 | \$6,508,000 |
| | | | | | | |
| | O&M COST SUBTOTAL | 420,000 | 6,265,000 | 420,000 | 420,000 | 6,265,000 |
| | Contingency @ 30% | \$126,000 | \$1,879,500 | \$126,000 | \$126,000 | \$1,879,500 |
| | TOTAL O&M COST IN FY99 DOLLARS | \$546,000 | \$8,145,000 | \$546,000 | \$546,000 | \$8,145,000 |
| | TOTAL O&M COST IN ESCALATED DOLLARS | \$3,595,000 | \$53,628,000 | \$3,595,000 | \$3,595,000 | \$52,066,000 |
| | TOTAL O&M COST IN NET PRESENT VALUE | \$229,000 | \$3,420,000 | \$229,000 | \$229,000 | \$3,486,000 |
| | | | | | | |
| | TOTAL PROJECT COST IN FY1999 DOLLARS | \$1,977,000 | \$10,308,000 | \$34,291,000 | \$40,535,000 | \$15,719,000 |
| | TOTAL PROJECT COST IN ESCALATED DOLLARS | \$9,842,000 | \$61,992,000 | \$46,691,000 | \$53,565,000 | \$66,298,000 |
| | TOTAL PROJECT COST IN NET PRESENT VALUE DOLLAR | \$1,110,000 | \$4,860,000 | \$30,985,000 | \$36,778,000 | \$9,994,000 |

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

Estimator: D. T. Peterson

Date: January 29, 1999

Estimate Type: Planning

File: 3952-D

Approved By: 

I. **SCOPE OF WORK:** *Brief description of the proposed project.*

Provide a Planning Cost Estimate (rough order of magnitude) for comparison of the Waste Area Group (WAG) 4 Central Facilities Area (CFA) Environmental Restoration Feasibility Study. The following alternative scenarios have been selected for the initial evaluation.

WAG 4 - CFA 08: SEWAGE TREATMENT PLANT DRAINFIELD.

- Alternative #1: No Action
- Alternative #2: Institutional Controls
- Alternative #3A: Excavate, Treat and On Site Disposal
- Alternative #3B: Excavate, Treat and Off Site Disposal
- Alternative #4: Containment with the ET Type Cap Cover

Summary costs have been prepared for comparative analyses and are presented in:

1. Current year 1999 dollars.
2. Escalated dollars per DOE published rates.
3. Present net worth dollars, discounting at a rate of 5% as recommended by the EPA under CERCLA guidance.

II. **BASIS OF THE ESTIMATE:** *Drawings, Design Report, Engineers Notes and/or other documentation upon which the estimate is originated.*

Discussions with the Requestor (J. F. Keck).

Notegram from the Requestor outlining the preliminary scope, footprint and depth of contamination for this site.

Discussions with vendors currently participating in these types of restoration.

Use of the R. S. Means "Environmental Remediation Cost Data" manuals.

Field observations of current and past INEEL construction projects and practices.

A project site visit.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

File: 3952-D

Page 2

Practices and techniques used in the development of previous comparable FS Cost Estimates. These would include, but not limited to:

1. The estimates generated were performed in conjunction with the editing of the draft FS. Costs were generated and coordinated by cognizant estimators, engineers, and technical personnel.
2. Applicable Draft sections, and preliminary outlines of FS document.
3. Coordination and status meetings with the Environmental Restoration cognizant engineers.
4. Area maps of sites from the Geographic Information System (GIS).
5. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," Interim Final, published by the EPA for Superfund guidance.
6. Conversations with responsible performing organizations, i.e., LMITCO Legal Department (historical permitting/documentation effort), Sample Management Office (historical sampling and analysis requirements and costs), etc.
7. Drawings, sketches, flow diagrams generated as a result of the scoping process and cost estimate basis.
8. Descriptive makeup of the cap configurations considered for Alternative, sketch of footprint area and perimeter toe area of cap.
9. Cost information from Appendix E in "Focused Feasibility Study of Engineered Barriers for Waste Management Units in the 200 Areas," Bechtel Hanford, Inc., DOE/RL-93-33, Rev. 0.
10. D&D List, "INEL EM 40/60, RAD Contaminated Surplus Facilities, etc."
11. Procurement Fee and General and Administrative (G&A) percentages as prepared by Program Controls and Financial Operations, "Lockheed Idaho Technologies Company FY 1997 Planning Preparation Guidance", dated June 1, 1996, Rev. 0.

III. ASSUMPTIONS: *Conditions statements accepted or supposed true without proof of demonstration. An assumption has a direct impact on total estimated cost.*

This estimate assumes the following:

This estimate is based upon the activities and quantities stated on each detail sheet. Any variations to these quantities or activities will require adjustments to this estimate.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

File: 3952-D

Page 3

The Record of Decision will be signed in September of 1999. All Remedial Design and construction activities have been assumed to begin in the year 2000. Remedial Action activities vary per alternative and have been escalated to the midpoint of each activity.

INEEL Site Stabilization wages will apply; no overtime or shift differential has been considered for the construction efforts of these estimates.

No provisions were made for an 8-A Set Aside contractor. It is assumed that the job will be competitively bid within the local subcontracting community or accomplished by LMITCO personnel.

FFA/CO management costs encompass management oversight and coordination of initial planning activities, remedial action activity, operations/maintenance, including long term monitoring and institutional controls.

Program management duration was determined by the remedial action activity duration. Average effort was reflected as (1) full-time-equivalent (FTE) for the scheduled duration at a burdened rate of \$125,000 per year per FTE.

Program management involvement for the operation/maintenance period, an average effort of .25 FTE for the scheduled duration at a burdened rate of \$125,000 per year per FTE or \$31,250 per year.

RD/RA documents have been estimated as FFA/CO primary documents for quality, rigor, review and comment resolution. It is assumed that the review and comment resolution will be 50% of the total document costs. Where possible, RD/RA document preparation and program management costs have been based on historical data as per the INEL ER Cost Estimating Guide, Volume II, Environmental Restoration, August 1994.

The capital and O&M activities vary for all options and will start as directed by the responsible ER Program Management personnel. Capital costs will vary from one to three years per option dependent upon the complexity of remedial action activities. Duration of the Operations and Maintenance activity - surveillance and monitoring, is assumed to be 100 years.

Assume that the cost allowance associated with Program Documentation and Permitting will be sufficient to include all sites.

Remedial Design Activities include added institutional controls and a Title Design Construction Document package supporting remedial construction activities:

1. Added Institutional Controls consist of legal and environmental affairs relating to land and deed restrictions at the CFA. It is assumed that all required land and deed restriction

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

File: 3952-D

Page 4

documents exist for all INEEL sites. Costs have been included for five year reviews with the governing bodies and agencies to ensure existing restrictions meet current CERCLA compliance.

2. The Title Design Construction Document package assumes in-house Title I/Title II engineering effort and design document preparation. Costs associated with the Title Design efforts are based on historical data for construction projects on the INEEL Site. Title Design ranges from 2% to 20% of each construction subcontract depending upon the complexity. It has been assumed that the design required for these alternatives will be of a simplistic nature.

Project/Construction Management activities in support of the remedial action construction is based on historical data for construction projects on the INEEL Site. A percentage of 22.06% of the construction subcontract directs and indirects is reflected.

Ground water monitoring will not be required.

It is assumed that the costs for minimal operational effort for these items will be covered for a 100 year duration from the signing of the Record of Decision (ROD).

FFA/CO Program Management has been included for an initial one year duration to coordinate with agencies and to oversee the RD/RA document preparation.

Existing Institutional Controls over a 100 year duration include costs minimal passive activities and operational effort for the following items:

1. Minimal grounds maintenance and repair including an allowance of material and the labor required for periodic repair of fencing, access roads and signage.
2. Caretaker inspection of the area.

Operations Program Management has been included, for a minimal effort, at an average of .25 FTE per year for a 100 year surveillance and monitoring period.

Caretaker responsibilities will include a visual inspection of the physical security provisions (i.e., fencing, roads, signage, etc.), well inspections, coordination of snow removal and general grounds maintenance and upkeep. Minimal hours have been included at an average of .1 FTE per year for the 100 year surveillance and monitoring period.

Additional Institutional Controls consist of legal and environmental affairs relating to land and deed restrictions at the CFA area. It is assumed that all required land and deed restriction documents already exist for the INEEL. Costs have been included for five year reviews with the governing bodies and agencies to evaluate current conditions with CERCLA compliance.

Additional controls may include:

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

File: 3952-D

Page 5

1. Deed/regulatory restrictions limiting land use.
2. Soil moisture management and erosion control practice including groundwater drainage control and diversion.
3. Limit of access including security, fencing and markers.
4. Environmental monitoring (air, soil, and groundwater as indicated).

Material and labor associated with the sample collection have been extrapolated from a current Environmental Management Work Package. An average cost per sample has been assumed for materials and an average labor factor per sample was utilized.

Five year reviews have been included for the 100 year surveillance and monitoring period.

It has been assumed that all capping materials (where applicable) are readily available on site in sufficient quantities unless specified and costed in the detail sheets.

It has been assume that the disposal sites "as stated in the estimate", can and will accept the disposal materials.

The sampling of the waste incoming to the repository is assumed to be the responsibility of the waste soils generator.

It was assumed that permitting and legal services were required and costs have been included in these estimates.

It is assumed that personnel will be required to wear minimal personnel protective equipment (booties, gloves, and masks) during all excavation.

Interim weather protection and water runoff control of the contaminated soils disposal at culmination of seasonal fair weather will be handled with a liner or tarp.

Monitoring and Five (5) year WAG reviews will be required for all alternatives as discussed with Requestor.

RCRA sampling costs were included based on information from LMITCO ER program personnel.

- IV. **CONTINGENCY GUIDELINE IMPLEMENTATION:** *The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost.*

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG4) FS Alternative Cost Estimates

File: 3952-D

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Time constraints, completeness of design and accessibility to resources have been taken into consideration in generating the final costs reflected in the accompanying detail sheets. The level of detailed costing and application of contingency have been addressed.

Maintaining conformance with standard Environmental Restoration Program Procedure's neither contingency and/or Management Reserve have been included within the body of this estimate. At the final summary level, an average overall project contingency of 30% has been reflected as a separate line item.

Standard Cost Estimating practice for Environmental Projects would recognize contingency within a range of 30% to 50% at this phase of planning. The possibility for changes in scope, selected remedial technology, waste characterization/volume and project definition present risks that need to be considered as potential impacts to the cost of projects at this early stage of scoping.

The 30% contingency was applied to all alternatives in order to maintain consistency for the purposes of comparative analysis only.

V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE

Alternatives include an allowance for the General and Administration (G&A) and Procurement Fees on all subcontract work at a rate of 33% for G&A and PIF, and 2.5% for Procurement Fee compounded. No attempt was made at this time to outline a subcontract strategy to determine the number of subcontracts and/or separate procurement subcontracts that may be required during remedial action. As the preferred alternatives are selected and scope/schedule is further defined, costs will be revised.

The cost estimate shows life cycle costs for the WAG site as a stand alone project from signature of the ROD to the dismantlement of the WAG. The estimate is presented in a format consistent with the level of detail and approach for all sites. This format allows the cost estimate to be traceable to previous scope and schedule documentation. It facilitates comparison between other alternatives within the WAG sites and the WAG as a whole. The cost estimate details cost and scope assumptions in (6) RD/RA Area's: Design, Construction, Operations, Facilities Demolition, Surveillance and Monitoring, and Project/Program Management.

SUMMARY OF DETAILED COST ESTIMATE

Rev 10-96

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Type of Estimate: 3952-D

Date: 01/29/99

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Prep'd By: J. R. Baker

Location Idaho National Engineering & Environmental Laboratory (INEEL)Requester J. F. Keck MS 3625 526-5458

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 NO ACTION | ALTERNATIVE #2 INSTITUTIONAL CONTROLS | ALTERNATIVE #3A EXCAVATE TREAT & ON SITE DISPOSAL | ALTERNATIVE #3B EXCAVATE TREAT & OFF SITE DISPOSAL | ALTERNATIVE #4 CONTAINMENT w/ ET - TYPE COVER |
|--------------|---|--------------------------------|---|--|---|--|
| ER1220 | FFA/CO Management and Oversight | | | | | |
| | Program Management | \$125,000 | \$125,000 | \$437,500 | \$437,500 | \$312,500 |
| | RA Document Preparation | | | | | |
| | RD/RA SOW | \$54,000 | \$54,000 | \$54,000 | \$54,000 | \$54,000 |
| | RA Workplan | \$63,000 | \$63,000 | \$63,000 | \$63,000 | \$63,000 |
| | Packaging, Shipping, Tran. Documentation | N/A | N/A | N/A | \$78,000 | N/A |
| | Remedial Action Report | \$48,000 | \$48,000 | \$48,000 | \$48,000 | \$48,000 |
| | WAG-Wide RA - 5 Yr. Review For 100 Years | \$811,000 | \$811,000 | \$811,000 | \$811,000 | \$811,000 |
| | RD Documentation Preparation | | | | | |
| | Safety Analysis Documentation (ASA & HSP) | N/A | \$100,500 | \$100,500 | \$100,500 | \$100,500 |
| | Sampling and Analysis Plan | N/A | N/A | \$108,000 | \$108,000 | \$108,000 |
| | Pre-Final Inspection Report | N/A | \$7,500 | \$7,500 | \$7,500 | \$7,500 |
| ER1210 | Remedial Design | | | | | |
| | Added Institutional Controls - 5 Yr. Review For 100 Years | N/A | \$200,000 | \$200,000 | \$200,000 | \$200,000 |
| | Title Design Construction Document Package | N/A | \$21,000 | \$85,000 | \$85,000 | \$59,500 |
| ER1230 | Remedial Action - Construction Subcontract | | | | | |
| | Site Characterization | N/A | N/A | \$1,539,000 | \$1,539,000 | \$248,000 |
| | Construction Subcontract/GFE | N/A | \$201,000 | \$19,499,000 | \$24,207,000 | \$3,280,000 |
| | Project/Construction Management Allowance | N/A | \$32,649 | \$3,005,000 | \$3,022,441 | \$534,000 |
| | TOTAL CAPITAL COST | \$1,101,000 | \$1,663,649 | \$25,957,500 | \$30,760,941 | \$5,826,000 |
| ER1230 | Remedial Action - Operations (100 Year Duration) | | | | | |
| | Program Management | N/A | \$3,385,000 | N/A | N/A | \$3,385,000 |
| | Continued/New Construction CFA Caretaker/Maintenance | N/A | \$2,460,000 | N/A | N/A | \$2,460,000 |
| | Operations, Maintenance, Materials, and Disposal | N/A | N/A | N/A | N/A | N/A |
| ER2000 | D&D of Facilities | N/A | N/A | N/A | N/A | N/A |
| ER1310 | Surveillance and Monitoring | \$420,000 | \$420,000 | \$420,000 | \$420,000 | \$420,000 |
| | TOTAL OPERATIONS COST (100 YEARS) | \$420,000 | \$6,265,000 | \$420,000 | \$420,000 | \$6,265,000 |

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #1

No Action

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #1

No Action

[illegible]

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #1

No Action

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

| | |
|---------|---|
| Project | OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates |
| | Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield |
| | Alternative #1 |
| | No Action |

File No: 3952-D

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

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Type of Estimate: Planning File No: 3952-D

Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates
Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield
Alternative #2
 Institutional Controls

Type of Estimate: Planning File No: 3952-D

Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Type of Estimate: Planning

Date: 01/29/99

Excavate, Segmented Gate Treatment & Onsite Disposal

[illegible]

Type of Estimate: Planning File No: 3952-D

Prep'd By: J. R. Baker

| | |
|---------|---|
| Project | OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates |
| | Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield |
| | Alternative #3A |
| | Excavate, Segmented Gate Treatment & Onsite Disposal |

[illegible]

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates
Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield
Alternative #3A
Excavate, Segmented Gate Treatment & Onsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3A

Excavate, Segmented Gate Treatment & Onsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3A

Excavate, Segmented Gate Treatment & Onsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3A

Excavate, Segmented Gate Treatment & Onsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3A

Excavate, Segmented Gate Treatment & Onsite Disposal

[illegible]

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3B

Excavate, Segmented Gate Treatment & Offsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3B

Excavate, Segmented Gate Treatment & Offsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3B

Excavate, Segmented Gate Treatment & Offsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3B

Excavate, Segmented Gate Treatment & Offsite Disposal

[illegible]

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #3B

Excavate, Segmented Gate Treatment & Offsite Disposal

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

| | |
|---------|---|
| Project | OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates |
| | Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield |
| | Alternative #3B |
| | Excavate, Segmented Gate Treatment & Offsite Disposal |

Type of Estimate: Planning File No: 3952-D

Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #4

Containment with ET - Type Cap Cover

[illegible]

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Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

Project OU 4-13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: PlanningFile No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 08: Sewage Treatment Plant Drainfield

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: Planning

File No: 3952-D

Date: 01/29/99

Prep'd By: J. R. Baker

[illegible]

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Type of Estimate: Planning File No: 3952-D

Date: 01/29/99
Prep'd By: J. R. Baker

[illegible]

Lockheed Martin Idaho Technologies Company
INTERDEPARTMENTAL COMMUNICATION

Date: January 29, 1999

To: J. F. Keck MS 3625 6-5458

From: D. T. Peterson MS 3655 6-2990

Subject: OPERABLE UNIT (OU) 4 – 13 WASTE AREA GROUP (WAG) 4 FEASIBILITY
 STUDY (FS) ALTERNATIVE COST ESTIMATES – CENTRAL FACILITIES
 AREA (CFA) 10 – TRANSFORMER YARD OIL SPILL - DTP-007-99

Per your request, Cost Estimating has revised the Planning Cost Estimate to reflect the changes in the original and the additional scopes of work for the above-mentioned project. The Total Project Costs (TPC) for each of these alternatives are as follows:

| <u>Alternative</u> | <u>1999 Dollars</u> | <u>Net Present Value Dollars</u> | <u>Escalated Dollars</u> |
|---|---------------------|----------------------------------|--------------------------|
| #1 No Action | \$ 1,431,000 | \$ 881,000 | \$ 6,247,000 |
| #2 Institutional Controls | \$ 8,300,000 | \$ 3,909,000 | \$ 49,912,000 |
| #3A Excavate, Treat & On Site Disposal | \$ 1,456,000 | \$ 1,380,000 | \$ 1,553,000 |
| #3B Excavate, Treat & Off Site Disposal | \$ 1,525,000 | \$ 1,442,000 | \$ 1,632,000 |
| #4 Containment w/ the ET Type Cap Cover | \$ 9,256,000 | \$ 4,860,000 | \$ 49,727,000 |

Included for your use is the Cost Estimating Summary and Detail sheets with the cost breakdowns. Also included are the Cost Estimate Recapitulation sheets describing the basis and assumptions used in the development of this estimate. If you have any questions or comments, please do not hesitate to contact me at 526-2990 or E-mail ID DTP.

Attachments
 As Stated:

cc: Estimate File #3954 – Rev. D
 J. R. Baker Files



SUMMARY COST ESTIMATE SHEET

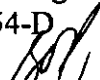
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Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost EstimatesType of Estimate: PlanningFile No: 3954 - DDate: 01/29/99Central Facilities Area (CFA) - 10: Transformer Yard Oil SpillsPrep'd By: J. R. BakerLocation Idaho National Engineering & Environmental Laboratory (INEEL)Checked By: Requester J. F. Keck MS 3625 526-5458

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 | ALTERNATIVE #2 | ALTERNATIVE #3A | ALTERNATIVE #3B | ALTERNATIVE #4 | |
|--------------|---|----------------|---------------------------|---|--|--------------------------------------|--|
| | | NO ACTION | INSTITUTIONAL CONTROLS | EXCAVATE TREAT & ON SITE DISPOSAL | EXCAVATE TREAT & OFF SITE DISPOSAL | CONTAINMENT w/ ET - TYPE COVER | |
| | CAPITAL COST SUBTOTAL | \$1,101,000 | \$1,504,368 | \$1,120,000 | \$1,173,000 | \$2,240,000 | |
| | Contingency @ 30% | \$330,300 | \$451,310 | \$336,000 | \$351,900 | \$672,000 | |
| | TOTAL CAPITAL COST IN FY99 DOLLARS | \$1,431,000 | \$1,956,000 | \$1,456,000 | \$1,525,000 | \$2,912,000 | |
| | TOTAL CAPITAL COST IN ESCALATED DOLLARS | \$6,247,000 | \$8,140,000 | \$1,553,000 | \$1,632,000 | \$9,171,000 | |
| | TOTAL CAPITAL COST IN NET PRESENT VALUE | \$881,000 | \$1,245,000 | \$1,380,000 | \$1,442,000 | \$2,145,000 | |
| | | | | | | | |
| | O&M COST SUBTOTAL | N/A | \$4,880,000 | N/A | N/A | \$4,880,000 | |
| | Contingency @ 30% | N/A | \$1,464,000 | N/A | N/A | \$1,464,000 | |
| | TOTAL O&M COST IN FY99 DOLLARS | N/A | \$6,344,000 | N/A | N/A | \$6,344,000 | |
| | TOTAL O&M COST IN ESCALATED DOLLARS | N/A | \$41,772,000 | N/A | N/A | \$40,556,000 | |
| | TOTAL O&M COST IN NET PRESENT VALUE | N/A | \$2,664,000 | N/A | N/A | \$2,715,000 | |
| | | | | | | | |
| | TOTAL PROJECT COST IN FY1999 DOLLARS | \$1,431,000 | \$8,300,000 | \$1,456,000 | \$1,525,000 | \$9,256,000 | |
| | TOTAL PROJECT COST IN ESCALATED DOLLARS | \$6,247,000 | \$49,912,000 | \$1,553,000 | \$1,632,000 | \$49,727,000 | |
| | TOTAL PROJECT COST IN NET PRESENT VALUE DOLLARS | \$881,000 | \$3,909,000 | \$1,380,000 | \$1,442,000 | \$4,860,000 | |

COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates
Estimator: D. T. Peterson
Date: January 29, 1999
Estimate Type: Planning
File: 3954-D
Approved By: 

I. **SCOPE OF WORK:** *Brief description of the proposed project.*

Provide a Planning Cost Estimate (rough order of magnitude) for comparison of the Waste Area Group (WAG) 4 Central Facilities Area (CFA) Environmental Restoration Feasibility Study. The following alternative scenarios have been selected for the initial evaluation.

WAG 4 - CFA 10: TRANSFORMER YARD OIL SPILLS.

Alternative #1: No Action
Alternative #2: Institutional Controls
Alternative #3A: Excavate, Treat and On Site Disposal
Alternative #3B: Excavate, Treat and Off Site Disposal
Alternative #4: Containment with the ET Type Cap Cover

Summary costs have been prepared for comparative analyses and are presented in:

1. Current year 1999 dollars.
2. Escalated dollars per DOE published rates.
3. Present net worth dollars, discounting at a rate of 5% as recommended by the EPA under CERCLA guidance.

II. **BASIS OF THE ESTIMATE:** *Drawings, Design Report, Engineers Notes and/or other documentation upon which the estimate is originated.*

Discussions with the Requestor (J. F. Keck).

Notegram from the Requestor outlining the preliminary scope, footprint and depth of contamination for this site.

Discussions with vendors currently participating in these types of restoration.

Use of the R. S. Means "Environmental Remediation Cost Data" manuals.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3954-D

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Field observations of current and past INEEL construction projects and practices.

A project site visit.

Practices and techniques used in the development of previous comparable FS Cost Estimates. These would include but not limited to:

1. The estimates generated were performed in conjunction with the editing of the draft FS. Costs were generated and coordinated by cognizant estimators, engineers, and technical personnel.
2. Applicable Draft sections and preliminary outlines of FS document.
3. Coordination and status meetings with the Environmental Restoration cognizant engineers.
4. Area maps of sites from the Geographic Information System (GIS).
5. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," Interim Final, published by the EPA for Superfund guidance.
6. Conversations with responsible performing organizations, i.e., LMITCO Legal Department (historical permitting/documentation effort), Sample Management Office (historical sampling and analysis requirements and costs), etc.
7. Drawings, sketches, flow diagrams generated as a result of the scoping process and cost estimate basis.
8. Descriptive makeup of the cap configurations considered for Alternative, sketch of footprint area and perimeter toe area of cap.
9. Cost information from Appendix E in "Focused Feasibility Study of Engineered Barriers for Waste Management Units in the 200 Areas," Bechtel Hanford, Inc., DOE/RL-93-33, Rev. 0.
10. D&D List, "INEL EM 40/60, RAD Contaminated Surplus Facilities, etc."
11. Procurement Fee and General and Administrative (G&A) percentages as prepared by Program Controls and Financial Operations, "Lockheed Idaho Technologies Company FY 1997 Planning Preparation Guidance", dated June 1, 1996, Rev. 0.

III. **ASSUMPTIONS:** *Conditions statements accepted or supposed true without proof of demonstration. An assumption has a direct impact on total estimated cost.*

This estimate assumes the following:

This estimate is based upon the activities and quantities stated on each detail sheet. Any variations to these quantities or activities will require adjustments to this estimate.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3954-D

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The Record of Decision will be signed in November of 1999. All Remedial Design and construction activities are assumed to begin in the year 2000. Remedial Action activities vary per alternative and have been escalated to the midpoint of each activity.

INEEL Site Stabilization wages will apply; no overtime or shift differential has been considered for the construction efforts of these estimates.

No provisions were made for an 8-A Set Aside contractor. It is assumed that the job will be competitively bid within the local subcontracting community or accomplished by LMITCO personnel.

FFA/CO management costs encompass management oversight and coordination of initial planning activities, remedial action activity, operations/maintenance, including long term monitoring and institutional controls.

Program management duration was determined by the remedial action activity duration. Average effort was reflected as (1) full-time-equivalent (FTE) for the scheduled duration at a burdened rate of \$125,000 per year per FTE.

Program management involvement for the operation/maintenance period, an average effort of .25 FTE for the scheduled duration at a burdened rate of \$125,000 per year per FTE or \$31,250 per year.

RD/RA documents have been estimated as FFA/CO primary documents for quality, rigor, review and comment resolution. It is assumed that the review and comment resolution will be 50% of the total document costs. Where possible, RD/RA document preparation and program management costs have been based on historical data as per the INEL ER Cost Estimating Guide, Volume II, Environmental Restoration, August 1994.

The capital and O&M activities vary for all options and will start as directed by the responsible ER Program Management personnel. Capital costs will vary from one to three years per option dependent upon the complexity of remedial action activities. Duration of the Operations and Maintenance activity - surveillance and monitoring, is assumed to be 100 years.

Assume that the cost allowance associated with Program Documentation and Permitting will be sufficient to include all sites.

Remedial Design Activities include added institutional controls and a Title Design Construction Document package supporting remedial construction activities:

1. Added Institutional Controls consist of legal and environmental affairs relating to land deed restrictions at the CFA. It is assumed that all required land and deed restriction

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3954-D

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documents exist for all INEEL sites. Costs have been included for five-year reviews with the governing bodies and agencies to ensure existing restrictions meet current CERCLA compliance.

2. The Title Design Construction Document package assumes in-house Title I/Title II engineering effort and design document preparation. Costs associated with the Title Design effort are based on historical data for construction projects on the INEEL Site. Title Design ranges from 2% to 20% of each construction subcontract depending upon the complexity. It has been assumed that the design required for these alternatives will be of a simplistic nature.

Project/Construction Management activities in support of the remedial action construction is based on historical data for construction projects on the INEEL Site. A percentage of 22.06% of the construction subcontract directs and indirects is reflected.

No ground water monitoring will be required.

It is assumed that the costs for minimal operational effort for these items will be covered for a 100 year duration from the signing of the Record of Decision (ROD).

FFA/CQ Program Management has been included for an initial one year duration to coordinate with agencies and to oversee the RD/RA document preparation.

Existing Institutional Controls over a 100 year duration include costs minimal passive activities and operational effort for the following items:

1. Minimal grounds maintenance and repair including an allowance of material and the labor required for periodic repair of fencing, access roads and signage.
2. Caretaker inspection of the area.

Caretaker responsibilities will include a visual inspection of the physical security provisions (i.e., fencing, roads, signage, etc.), well inspections, coordination of snow removal and general grounds maintenance and upkeep. Minimal hours have been included at an average of .1 FTE per year for the 100 year surveillance and monitoring period.

Additional Institutional Controls consist of legal and environmental affairs relating to land and deed restrictions at the CFA area. It is assumed that all required land and deed restriction documents already exist for the INEEL. Costs have been included for five year reviews with the governing bodies and agencies to evaluate current conditions with CERCLA compliance.

Additional controls may include:

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3954-D

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1. Deed/regulatory restrictions limiting land use.
2. Soil moisture management and erosion control practice including groundwater drainage control and diversion.
3. Limit of access including security, fencing and markers.
4. Environmental monitoring (air, soil, and groundwater as indicated).

Five year reviews have been included for the 100 year surveillance and monitoring period.

It has been assumed that all capping materials (where applicable) are readily available on site in sufficient quantities unless specified and costed in the detail sheets.

It has been assumed that the disposal sites "as stated in the estimate", can and will accept the disposal materials.

The sampling of the waste incoming to the repository is assumed to be the responsibility of the waste soils generator.

It was assumed that permitting and legal services were required and costs have been included in these estimates.

It is assumed that personnel will be required to wear minimal personnel protective equipment (booties, gloves, and masks) during all excavation.

Interim weather protection and water runoff control of the contaminated soils disposal at culmination of seasonal fair weather will be handled with a liner or tarp.

RCRA sampling costs were included based on information from LMITCO ER program personnel.

IV. **CONTINGENCY GUIDELINE IMPLEMENTATION:** *The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost.*

Time constraints, completeness of design and accessibility to resources have been taken into consideration in generating the final costs reflected in the accompanying detail sheets. The level of detailed costing and application of contingency have been addressed.

COST ESTIMATE SUPPORT DATA RECAPITULATION

- Continued -

Project Title: OU 4-13 (WAG 4) FS Alternative Cost Estimates

File: 3954-D

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Maintaining conformance with standard Environmental Restoration Program Procedure's neither contingency and/or Management Reserve have been included within the body of this estimate. At the final summary level, an average overall project contingency of 30% has been reflected as a separate line item.

Standard Cost Estimating practice for Environmental Projects would recognize contingency within a range of 30% to 50% at this phase of planning. The possibility for changes in scope, selected remedial technology, waste characterization/volume and project definition present risks that need to be considered as potential impacts to the cost of projects at this early stage of scoping.

The 30% contingency was applied to all alternatives in order to maintain consistency for the purposes of comparative analysis only.

V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE

Alternatives include an allowance for the General and Administration (G&A) and Procurement Fees on all subcontract work at a rate of 33% for G&A and PIF, and 2.5% for Procurement Fee compounded. No attempt was made at this time to outline a subcontract strategy to determine the number of subcontracts and/or separate procurement subcontracts that may be required during remedial action. As the preferred alternatives are selected and scope/schedule is further defined, costs will be revised.

The cost estimate shows life cycle costs for the WAG site as a stand alone project from signature of the ROD to the dismantlement of the WAG. The estimate is presented in a format consistent with the level of detail and approach for all sites. This format allows the cost estimate to be traceable to previous scope and schedule documentation. It facilitates comparison between other alternatives within the WAG sites and the WAG as a whole. The cost estimate details cost and scope assumptions in (6) RD/RA Area's: Design, Construction, Operations, Facilities Demolition, Surveillance and Monitoring, and Project/Program Management.

SUMMARY OF DETAILED COST ESTIMATE

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Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates
Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills
 Location Idaho National Engineering & Environmental Laboratory (INEEL)
 Requester J. F. Keck MS 3625 526-5458

Type of Estimate: PlanningFile No: 3954 - DDate: 01/28/99Prep'd By: J. R. Baker

| ACCT. NO. | DESCRIPTION | ALTERNATIVE #1 | ALTERNATIVE #2 | ALTERNATIVE #3A | ALTERNATIVE #3B | ALTERNATIVE #4 | |
|--------------|---|--------------------|---------------------------|---|--|--------------------------------------|--|
| | | NO ACTION | INSTITUTIONAL CONTROLS | EXCAVATE TREAT & ON SITE DISPOSAL | EXCAVATE TREAT & OFF SITE DISPOSAL | CONTAINMENT w/ ET - TYPE COVER | |
| ER1220 | FFA/CO Management and Oversight | | | | | | |
| | Program Management | \$125,000 | \$125,000 | \$219,000 | \$219,000 | \$219,000 | |
| | RA Document Preparation | | | | | | |
| | RD/RA SOW | \$54,000 | \$54,000 | \$54,000 | \$54,000 | \$54,000 | |
| | RA Workplan | \$63,000 | \$63,000 | \$63,000 | \$63,000 | \$63,000 | |
| | Packaging, Shipping, Trans. Documentation | N/A | N/A | N/A | \$78,000 | N/A | |
| | Remedial Action Report | \$48,000 | \$48,000 | \$48,000 | \$48,000 | \$48,000 | |
| | WAG-Wide RA - 5 Yr. Review For 100 Years | \$811,000 | \$811,000 | N/A | N/A | \$811,000 | |
| | RD Documentation Preparation | | | | | | |
| | Safety Analysis Documentation (ASA & HSP) | N/A | \$100,500 | \$100,500 | \$100,500 | \$100,500 | |
| | Sampling and Analysis Plan | N/A | N/A | \$108,000 | \$108,000 | \$108,000 | |
| | Pre-Final Inspection Report | N/A | \$7,500 | \$7,500 | \$7,500 | \$7,500 | |
| ER1210 | Remedial Design | | | | | | |
| | Added Institutional Controls - 5 Yr. Review For 100 Years | N/A | \$200,000 | N/A | N/A | \$200,000 | |
| | Title Design Construction Document Package | N/A | \$21,000 | \$85,000 | \$60,000 | \$60,000 | |
| ER1230 | Remedial Action - Construction Subcontract | | | | | | |
| | Site Characterization | N/A | N/A | \$76,000 | \$76,000 | \$31,000 | |
| | Construction Subcontract/GFE | N/A | \$64,000 | \$315,000 | \$322,000 | \$463,000 | |
| | Project/Construction Management Allowance | N/A | \$10,368 | \$44,000 | \$37,000 | \$75,000 | |
| | TOTAL CAPITAL COST | \$1,101,000 | \$1,504,368 | \$1,120,000 | \$1,173,000 | \$2,240,000 | |
| ER1230 | Remedial Action - Operations (100 Year Duration) | | | | | | |
| | Program Management | N/A | \$3,385,000 | N/A | N/A | \$3,385,000 | |
| | Continued/New Construction CFA Caretaker/Maintenance | N/A | \$1,495,000 | N/A | N/A | \$1,495,000 | |
| | Operations, Maintenance, Materials, and Disposal | N/A | N/A | N/A | N/A | N/A | |
| ER2000 | D&D of Facilities | N/A | N/A | N/A | N/A | N/A | |
| ER1310 | Surveillance and Monitoring | N/A | N/A | N/A | N/A | N/A | |
| | TOTAL OPERATIONS COST (100 YEARS) | N/A | \$4,880,000 | N/A | N/A | \$4,880,000 | |

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #1

No Action

Type of Estimate: Planning

File No: 3954-D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

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Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #1

No Action

Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

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Type of Estimate: Planning

File No: 3954-D

Date: 01/28/99

Prep'd By: J. R. Baker

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Prep'd By: _____

[illegible]

[illegible]

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #2

Institutional Controls

Type of Estimate: PlanningFile No: File No:

Date: 01/28/99

Prep'd By:

[illegible]

Type of Estimate: Planning

File No: File No:

Date: 01/28/99

Prep'd By: _____

Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #2

Institutional Controls

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #2

Institutional Controls

Type of Estimate: Planning

File No: File No:

Date: 01/28/99

Prep'd By:

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Prep'd By: _____

[illegible]

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3A

Excavate, Cement Stabilization Treatment & On Site Disposal

Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

DETAILED COST ESTIMATE (CONT.SHEET)

Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3A

Excavate, Cement Stabilization Treatment & On Site Disposal

Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3A

Excavate, Cement Stabilization Treatment & On Site Disposal

Type of Estimate: Planning

File No: 3954-D

Date: 01/28/99

Prep'd By: J. R. Baker

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| | |
|---------|---|
| Project | OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates |
| | Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills |
| | Alternative #3A |
| | Excavate, Cement Stabilization Treatment & On Site Disposal |

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3A

Type of Estimate: Planning

File No: 3954-D

Date: 01/28/99

Prep'd By: J. R. Baker

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Project OU 4 - 13 Waste Area Group (WAG) 4 FS Cost Estimates

Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3A

Excavate, Cement Stabilization Treatment & On Site Disposal

Type of Estimate: Planning

File No: 3954 -D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3B

Excavate, Off Site Treatment & Disposal

Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

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Type of Estimate: Planning **File No:** 3954 - D

Prep'd By: J. R. Baker

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Type of Estimate: Planning

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Prep'd By: J. R. Baker

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Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #3B

Excavate, Off Site Treatment & Disposal

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: Planning

File No: 3954 - D

Date: 01/28/99

Prep'd By: J. R. Baker

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Central Facilities Area (CFA) - 10: Transformer Yard Oil Spills

Alternative #4

Containment with ET - Type Cap Cover

Type of Estimate: Planning

File No: 3954-D

Date: 01/28/99

Prep'd By: J. R. Baker

[illegible]

[illegible]